

Description

BIRD DETERRENT APPARATUS AND METHOD FOR MAKING SAME

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of, and priority to, provisional application serial No. 60/466,908, filed April 30, 2003, which application is hereby incorporated by reference in its entirety.

FIELD OF INVENTION

[0002] The present invention generally relates to a bird deterrent apparatus, and more particularly, to a bird deterrent apparatus having a base and at least one spike forming a pair of prongs and an arc between the prongs where the arc is inserted through a slot in the base, and a method for making the same.

BACKGROUND OF INVENTION

[0003] Overcoming bird infestation poses unique challenges. Bird control products that prevent birds from roosting, nest-

ing, and landing on buildings and structures have been in existence for some time.

[0004] Typical bird deterrent devices known in the art include multiple prongs or spikes extending from a base. Since the prongs or spikes are extremely uncomfortable, birds avoid alighting on them and one can therefore prevent birds from infesting specific places such as, for example, roofs, cables, statues, signs, ledges, beams, trusses, ledges, sill, air conditioners, etc., by placing such devices near or on such structures.

[0005] Examples of typical bird deterrent devices having base structures that support a number of spikes or prongs can be seen in U.S. Patent No. 5,253,444, U.S. Patent No. 5,433,029, U.S. Patent No. 5,400,552, U.S. Patent No. 5,606,830, U.S. Patent No. 5,691,032, and U.S. Patent No. 6,250,023, to name just a few. However, these devices all require time consuming production and manipulation to seat the spikes or prongs within the base thereby causing more costly and less reliable devices.

[0006] Accordingly, there is a need for a simple, easily constructed bird deterrent device which is not labor intensive to manufacture. There is also a need for a durable and reliable bird deterrent device having spikes or prongs where

the spikes or prongs are less susceptible to breaking.

SUMMARY OF INVENTION

[0007] It is a principal object of the present invention to provide an effective, durable, and reliable bird deterrent apparatus that is cost effective and easy to manufacture.

[0008] In general, the present invention is directed to a bird deterrent apparatus which includes a base and a number of spikes extending from the base where the spikes are bent to generally form a "V" shape having two prongs and the point of the "V" where the prongs meet is bent to generally form an inverted "U" shape or arc. The base includes a number of slots and the arc or inverted "U" shape of the spike is inserted through the slot so that the arc appears on top of the base and the prongs come from underneath the base and extend outward from opposite sides of the base.

[0009] In one aspect of the present invention, the prongs of the various spikes may be shaped to extend from the sides of the base at different angles. For example, one spike may have prongs which extend from the sides of the base at approximately a 45 degree angle and the next spike positioned on the base by inserting the arc of the spike through a slot in the base may have prongs which extend

from the sides of the base at approximately a 90 degree angle.

[0010] In another aspect of the present invention, a second series of single spikes may extend from the top of the base in a perpendicular fashion. These spikes are preferably comprised of the same material as the base and are preferably injection molded as part of the base. This second series of single spikes extending from the top of the base are preferably shorter than the first series of spikes having the prongs.

[0011] In yet another aspect of the device, there may be a number of spaced apart holes through the base which may be used to secure the base to a structure with screws or nails. Alternatively, the base may be secured to a structure by various other means such as wire ties, adhesive, clamps, VELCRO hook and eye attachments, and the like.

BRIEF DESCRIPTION OF DRAWINGS

[0012] Additional aspects of the present invention should become evident upon reviewing the non-limiting embodiments described in the specification taken in conjunction with the accompanying figures, wherein like numerals designate like elements, and

[0013] Figure 1 is a magnified perspective view of a portion of

one embodiment of the bird deterrent apparatus of the present invention;

[0014] Figure 2 is a perspective view of a portion of one embodiment of the base of the bird deterrent apparatus of the present invention;

[0015] Figure 3 is a perspective view of the base of the bird deterrent apparatus in Figure 2 showing the flexibility of the device for covering various types of surfaces and structures;

[0016] Figure 4 is a bottom plan view of the base of the bird deterrent apparatus shown in Figure 2;

[0017] Figure 5 is a perspective view showing the means for connecting a spike having prongs to the base in order to produce the bird deterrent apparatus of the present invention;

[0018] Figure 6 is a front cross sectional view of the bird deterrent apparatus of the present invention;

[0019] Figure 7 illustrates one embodiment of the bird deterrent apparatus of the present shown installed on a structure;

[0020] Figure 8 illustrates various embodiments of a spike member of the bird deterrent apparatus of the present invention;

[0021] Figures 9–11 show various alternative embodiments of the

bird deterrent apparatus of the present invention;

[0022] Figure 12 illustrates one means for installing the bird deterrent device of the present invention;

[0023] Figures 13–14 show the bird deterrent device of the present invention installed on various structures; and

[0024] Figure 15 illustrates alternative configurations for installing the bird deterrent apparatus of the present invention on ledges.

DETAILED DESCRIPTION

[0025] The following descriptions are of exemplary embodiments of the invention only, and are not intended to limit the scope, applicability or configuration of the invention in any way. Rather, the following description is intended to provide a convenient illustration for implementing various embodiments of the invention. As will become apparent, various changes may be made in the function and arrangement of the elements described herein without departing from the spirit and scope of the invention.

[0026] In general, the present invention comprises a bird deterrent apparatus 10 having a base member 12 and a plurality of spike members 14 which form oppositely disposed prongs 16 and an inverted "U" shape or arc 18 between prongs 16. Base member 12 has a plurality of slots 20 for

receiving arcs 18. Arcs 18 are fitted through slots 20 and prongs 16 extend from underneath base member 12 and around the sides of base member 12 so that oppositely disposed prongs 16 extend from opposite sides of base member 12.

[0027] Base member 12 may also comprise a plurality of pairs of oppositely disposed notches 22 on the sides of base member 12 for receiving oppositely disposed prongs 16. Base member 12 may further comprise a plurality of secondary spike members 24 which extend perpendicularly from the top 26 of base member 12.

[0028] Spike members 14 are preferably comprised of stainless steel and prongs 16 of spike members 14 are preferably longer in length than secondary spike members 24. Secondary spike members 24 are preferably comprised of a polycarbonate, or other polymers, with ultraviolet inhibitors in order to increase resistance to weather and other harsh environments. Base member 12 is preferably formed by injection molding and is also preferably comprised of a polycarbonate, or other polymers, having ultraviolet inhibitors. However, those skilled in the art will appreciate that base member 12 may be formed of a variety of other sturdy materials including metal and that

base member 12 comprising other materials may be formed in other ways, such as, for example, stamping a metal material to form base member 12. Further, secondary spike members 24 may be injection molded along with base member 12 as part of base member 12. Alternatively, secondary spike members 24 may be secured to top 26 of base member 12 by fitting secondary spike members 24 into apertures contained within top 26 of base member 12 and securing secondary spike members 24 in the apertures with a strong adhesive or the like.

[0029] Base member 12 may also include a plurality of apertures 28 which extend from top 26 of base member 12 through the bottom surface 30 of base member 12 (See Fig. 4) so that bird deterrent apparatus 10 may be affixed or secured to a structure by inserting nails or screws through apertures 28 and into the structure.

[0030] Turning now to Figure 2, a perspective view of base member 12 of bird deterrent apparatus 10 is shown. As previously described, secondary spike members 24 may be injection molded as part of base member 12 or may be separately secured to top 26 of base member 12. Base member 12 may comprise a series of oppositely disposed protrusions 30 positioned along its sides with oppositely dis-

posed protrusions 30 containing oppositely disposed notches 22 for receiving prongs 16 of spike members 14. Base member 12 shown in Figure 2 also includes apertures 28 for enabling easy attachment to structures.

[0031] The flexibility of base member 12 is illustrated in Figure 3 which shows base member 12 bent along line X in the form of a circle. Base member 12 along with spike members 14 and secondary spike members 24 are formed and configured to easily follow the bends and curves of any structure so that bird deterrent apparatus 10 can be effective in almost any location. A bottom plan view of base member 12 is shown in Figure 4. Slots 20 which are positioned between each pair of oppositely disposed notches 22 and which extend through base member 12 from top 26 through bottom 30 are also shown. Apertures 28 which pass through top 26 and bottom 30 of base member 12 are also shown and the position of where secondary spike members 24 extend from top 26 of base member 12 are shown in phantom.

[0032] Figure 5 shows the insertion means for connecting a spike having prongs to the base having slots in order to produce the bird deterrent apparatus 10 of the present invention. As previously described, base member 12 in-

cludes slots 20 which pass from top 26 of base member 12 through bottom 30 of base member 12. The arc 18 of spike member 14 is inserted through slot 20 from the bottom 30 of base member 12. As arc 18 passes through slot 20, prongs 16 of spike member 14 pass along opposite outer sides of base member 12. Upon completion of the insertion through slot 20, arc 18 resides above top 26 of base member 12 and the bends 34 in spike member 14 which are located between arc 18 and prongs 16 are hooked underneath base member 12 as shown in Figure 6. As a result, notches 22 in the sides of base member 12 receive prongs 16 which extend upward and beyond top 26 from opposite sides of base member 12. Securing spike members 14 to base member 12 in this way results in an easier and more cost effective way to produce a bird deterrent device. In contrast, other devices require spikes or prongs to be inserted through very small holes in order to secure the spikes to a base.

[0033] Prongs 16 may extend from base member 12 at various angles in relation to base member 12. For example, prongs 16 may extend from the sides of base member 12 in approximately a ninety degree angle in relation to base member 12 as shown in Figures 1 and 8 by arrow 40 or in

approximately a forty-five degree angle in relation to base member 12 as shown in Figures 1 and 8 by arrow 42. It should be understood by those skilled in the art that prongs 16 may extend from sides of base member 12 at any angle. Figure 8 shows examples of various positions of which prongs 16 may extend from base member 12. Further, prongs 16 in the present invention may be bent to the various angled positions by a user.

[0034] Figure 7 shows bird deterrent apparatus 10 of the present invention secured to the top 50 of a structure 52. The embodiment of bird deterrent apparatus 10 shown in Figure 7 includes pairs of prongs 16 that extend from base member 12 in angles that alternate between approximately forty-five degrees and ninety degrees. Figures 9–11 show various alternative embodiments of the bird deterrent apparatus of the present invention. Figure 10 shows an embodiment similar to that shown in Figure 7 while Figure 9 shows an embodiment having pairs of prongs all extending from approximately a ninety degree angle from base member 12. Figure 11 shows an embodiment having pairs of oppositely disposed prongs that alternate in extending from various angles that are even more pronounced than those shown in Figure 10.

[0035] Figure 12 illustrates one means for installing the bird deterrent device of the present invention to a structure. An adhesive 60 used to bond dry, clean surfaces when the temperature is between 32 degrees F and 120 degrees F may be used by applying a bead of the adhesive to bottom 30 of base member 12 and pressing base member 12 against a structure. Apertures 28 in base member 12 may also be used to secure bird deterrent apparatus 10 to a structure by inserting screws or nails through them. Wire ties, clamps, and VELCRO hook and eye type fasteners may also be used to secure apparatus 10 to a structure. One or many of these installation means may be used to secure apparatus 10 to a structure.

[0036] The bird deterrent device of the present invention is shown installed on various structures in Figures 13–14. Single strips or rows of the apparatus 10 may be installed in a number of configurations and patterns. Further, as previously described above, bird deterrent apparatus 10 is flexible and able to follow bends and curves in structures as shown in Figure 13. Finally, Figure 14 shows examples of various configurations for installing bird deterrent apparatus 10 on a ledge or the like. One or more bird deterrent apparatus strips 10 may be used, or even a half of

the strip may be used and angles of prongs 16 may vary in each configuration.

[0037] Finally, in another embodiment of bird deterrent apparatus 10, both base member 12, spike members 14, and secondary spike members 24 may be coated with a polyethylene material or the like to provide a durable, rust-resistant device.

[0038] Thus, it should be apparent that many alterations of the bird deterrent apparatus embodiments described herein may be made. For example, as mentioned above, the prongs may extend from the base at varying angles. Further, the lengths and widths of the prongs as well as the second spike members may vary. In addition, drawbacks of the prior art are solved. For example, prongs or spikes are easily attached to the base in the present invention by snapping an arc of a spike member through a slot in the base. This reduces production time and decreases costs.

[0039] Lastly, various aspects of the invention have been described in illustrative embodiments. Of course, many combinations and modifications of the above-described structures, arrangements, proportions, elements, materials and components, used in the practice of the invention, in addition to those not specifically described, may be

varied and particularly adapted to specific environments and operating requirements without departing from those principles.